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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Appln No.:	09/997,892	)
Applicant(s):	Robert R. Keller, Jr.	)
Filed:	November 11, 2001	)
Title:	Method and Apparatus for Automatically Establishing Control Values for a Control Device	)
Art Unit:	2837	)
Examiner:	Tyrone W. Smith	)
Attorney Docket No.:	72312	)
Customer No.:	22242	)

Confirmation No. 4224

CERTIFICATE OF MAILING

I hereby certify that this paper is being deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to the Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on this date.

01/29/2004
Date

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TRANSMITTAL OF APPEAL BRIEF

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

Applicant(s) hereby appeal(s) to the Board of Patent Appeals and Interferences from the decision of the Primary Examiner dated October 31, 2003 finally rejecting claims 1-22 and 25-42.

The item(s) checked below are appropriate:

- ☒ Appeal Brief Fee, other than a small entity $330.00
- ☒ Enclosed is Applicant's Appeal Brief (in triplicate).
- ☐ Enclosed is Petition for Extension of Time (in triplicate).
- ☐ Not required (fee paid in prior appeal in this application).

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Application No. 09/996,208
Notice of Appeal dated January 29, 2004
Decision of Primary Examiner dated October 31, 2003

☒ The Commissioner is hereby authorized to charge any additional fees which may be required in connection with this appeal (specifically including the fee for filing a brief in support of this appeal if such brief is filed unaccompanied by full payment therefor, and the fee for filing a request for an oral hearing if such request is made unaccompanied by full payment therefor), or credit any overpayment to Deposit Account No. 06-1135. Should no proper payment be enclosed herewith, the Commissioner is authorized to charge the unpaid amount to Deposit Account No. 06-1135. This Notice is filed in duplicate.

Respectfully submitted,

January 29, 2004
Date

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Appln No.:	09/997,892	Confirmation No. 4224
Applicants:	Robert R. Keller, Jr.	
Filed:	November 11, 2001	
For:	Method and Apparatus for Automatically Establishing Control Values for a Control Device	
TC/A.U.:	2837	
Examiner:	Tyrone W. Smith	
Docket No.:	72312	
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CERTIFICATE OF MAILING

I hereby certify that this paper (along with any paper referred to as being attached or enclosed) is being deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to the Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on this date.

1/29/04
Date

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APPEAL BRIEF

Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

Pursuant to 37 C.F.R. §1.192, the applicants hereby respectfully submit the following Brief in support of their appeal. Pursuant to 37 C.F.R. §1.192(a) this brief is being filed in triplicate.

(1) Real Party in Interest

The Chamberlain Group, Inc., a Connecticut corporation, is the Real Party in Interest.

(2) Related Appeals and Interferences

There are no known related appeals or interferences that will directly affect or be directly affected by or have a bearing on the Board's decision in the present appeal.

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(3) Status of Claims

Claims 1-42 are pending. All of the claims are under final rejection with the exception of claims 23 and 24 that stand objected to.

(4) Status of Amendments

No amendments have been filed subsequent to entry of the final rejection.

(5) Summary of Invention

Moveable barrier controllers that can actuate a motor and cause a movable barrier, such a garage door, a gate, or a shutter are known. Such controllers are often able to sense resistance to barrier movement (as can occur when there is an obstacle in the moving barrier's path). This, in turn, can be used to modify movement of the barrier in an appropriate way (for example, by automatically reversing movement of the barrier upon detecting such an obstacle). [Page 1, lines 11-24.] FIG. 4 from the present application appears below for the convenience of the reader.

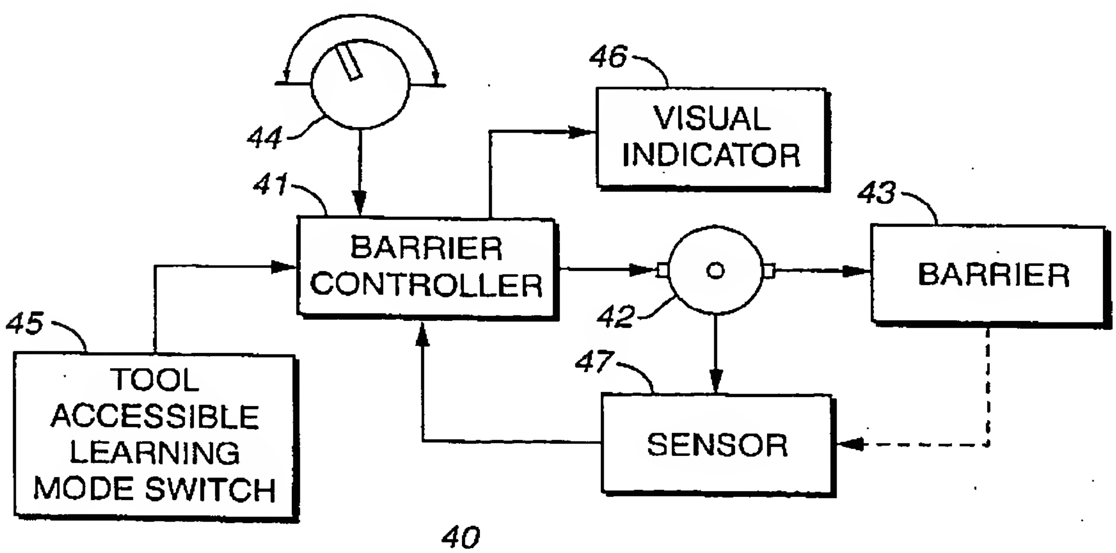


FIG. 4

A barrier controller (41) controls a motor (42) that effects desired movement of a given barrier (43). For example, the barrier can be caused to move between open and closed positions. A sensor (47) senses a parameter that corresponds to indicia of an obstacle to movement of the barrier (for example, the parameter can correspond to operation of the motor and/or to movement of the barrier itself). Such a barrier controller (41) can effect a learning mode (as described below in more detail) and this learning mode can be operator selected via a tool accessible learning mode switch (45). Such a learning mode can serve to establish a specific force control value that is useful to ascertain when the barrier has encountered an obstacle. Pursuant to these embodiments, that specific force control value is assigned to a specific location in the user manipulable setting range of a force control (44) such as a potentiometer. This force control (44) operably couples to the barrier controller (41) and provides a force sensitive input that the barrier controller utilizes to establish obstacle detection and automatic reversing operation. [Page 5, lines 3-26.]

As mentioned above, the barrier controller can effect a learning mode of operation. FIG. 5 from the present application appears below for the convenience of the reader.

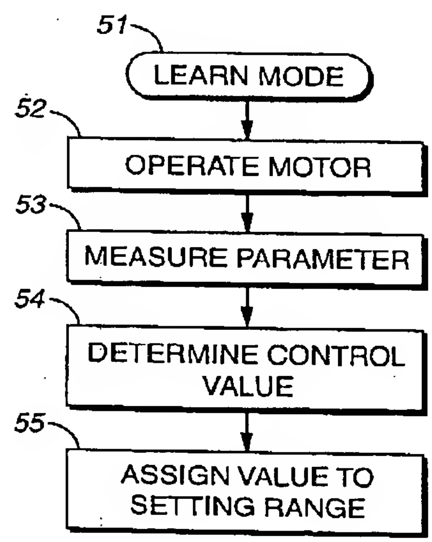


FIG. 5

A user enters the learning mode (51) (for example by actuating the user-manipulable learning mode initiation switch such as the tool accessible learning mode switch (45) described above). The barrier controller (41) then operates (52) the motor (42) and measures (53) the parameters that correspond to movement of the barrier (43). That parameter value is then used to determine (54) a specific force control value. The latter value is then assigned (55) to a specific location in the user manipulable setting range for the force control (44).

If desired, multiple force control values can be ascertained in this way and/or by using the determined force control value to calculate such other values. For example, minimum and maximum force control values can be calculated in this fashion. [Page 9, line 11 – Page 10, line 4.]

These one or more specific control values are then assigned, as indicated above, to specific positions within the setting range of the force control (44). For example, the parameter of interest can correlate to revolutions per minute of the motor, and calculated maximum and minimum face values of 1600 rpm and 1440 rpm respectively, can be assigned (71, 72) as indicated in FIG. 7 from the present application (reproduced below for the convenience of the reader).

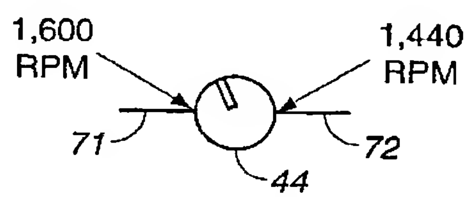


FIG. 7

Such assignments can be applied in various ways. For example, and referring to FIG. 8 (reproduced below for the convenience of the reader), the intervening values can be linearly distributed between such established upper and lower limits. Pursuant to this embodiment, the central point of the range between these two extremes would correspond to 1520 rpm (81).

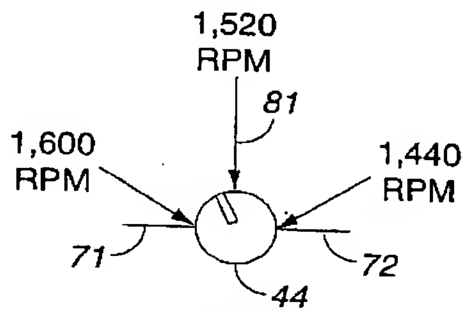


FIG. 8

It is also possible, however, to assign the intermediate values in a non-linear fashion. For example, with reference to FIG. 9 (reproduced below for the convenience of the reader), the central value of 1520 rpm (in this example) can be located (91) closer to one end of the range than the other. Such a positioning would likely increase the granularity and resolution of sensitivity when selecting a control value between the lower limit (71) and the non-midway physical location (91) of the midway value while simultaneously reducing granularity and resolution of sensitivity when selecting a control value positioned more proximal to the upper limit (72). [Page 10, line 11 – Page 11, line 6.]

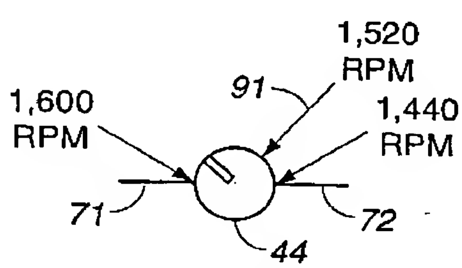


FIG. 9

Other embodiments are also possible. For example, FIG. 10 (reproduced below for the convenience of the reader) depicts a distribution pattern where a portion (101) of the values are disseminated in a linear fashion and another portion (102) are assigned in a non-linear fashion. [Page 11, line 8-19.]

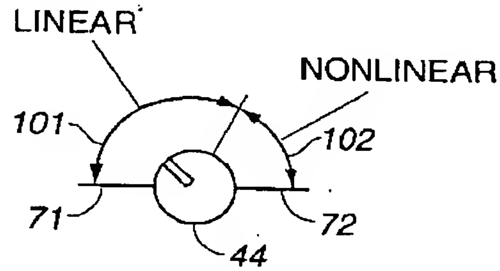


FIG. 10

So configured, the operating conditions of a given barrier controller can significantly alter over time (as can occur when changing motors, gear ratios, and the like). Notwithstanding such changes, upon initiation of a learn mode, the barrier controller can automatically ascertain one or more values to be assigned to the setting range of the force control for that barrier controller. Further, control values for the entire setting range can be selected to ensure that the setting range largely or wholly contains control values that are relevant and appropriate for the new operating conditions. This greatly enhances the ease of and likelihood that the operation of the barrier controller will be appropriately adjusted to ensure both safe and appropriate performance. [Page 12, line 25 – Page 13, line 7.]

(6) The Issues

Claims 28 and 32 are rejected under 35 U.S.C. 112, second paragraph. Claims 1-22 and 25-42 are rejected under 35 U.S.C. 103(a) given Miura (U.S. Patent No. 5,994,858) ("Miura") in view of Fitzgibbon et al. (U.S. Patent No. 6,172,475) ("Fitzgibbon").

(7) Grouping of the Claims

For purposes of this appeal, all of the claims may be considered as a group.

(8) Arguments

35 U.S.C. 112, Second Paragraph

The Examiner asserts that in claim 28, the phrase "about," and in claim 32, the phrase "a more than fully loaded," renders these claims indefinite, "because it is unclear whether the limitation(s) following the phrase are part of the claimed invention."

In claim 28, the phrase following the word "about" is "ten percent of the specific force control value." In context, the complete claim reads:

> The method of claim 27 wherein using the specific force control value to calculate a maximum force control value includes adding to the specific force control value an amount equal to about ten percent of the specific force control value.

The applicant disputes that, in this claim, it is unclear whether the phrase "ten percent of the specific force control value" is part of the claimed invention. Quite the contrary, without any stretch of the imagination or tortuous grammatical interpretation, the limitation "ten percent of the specific force control value" is clearly a part of and a limitation directed to the amount by which one might add additional value to a specific force control value in order to calculate a corresponding maximum force control value.

Claim 32 reads as follows:

> The method of claim 27 wherein automatically operating the motor under predetermined operating conditions includes automatically operating the motor under one of:
>
> – a less than fully loaded operating condition; and
>
> – a more than fully-loaded operating condition.

The phrase following the expression "a more than fully loaded" is "operating condition." The applicant asserts that it is utterly clear that those two trailing words, "operating condition," are a part of the claimed invention. In particular, it would be unreasonable to attempt to read claim 32 so that it read, in part:

– a less than fully loaded operating condition; and

– a more than fully unloaded."

The applicant respectfully asserts that both claims 28 and 32 are sufficiently specific so as not to violate the limited requirements of 35 U.S.C. 112, second paragraph.

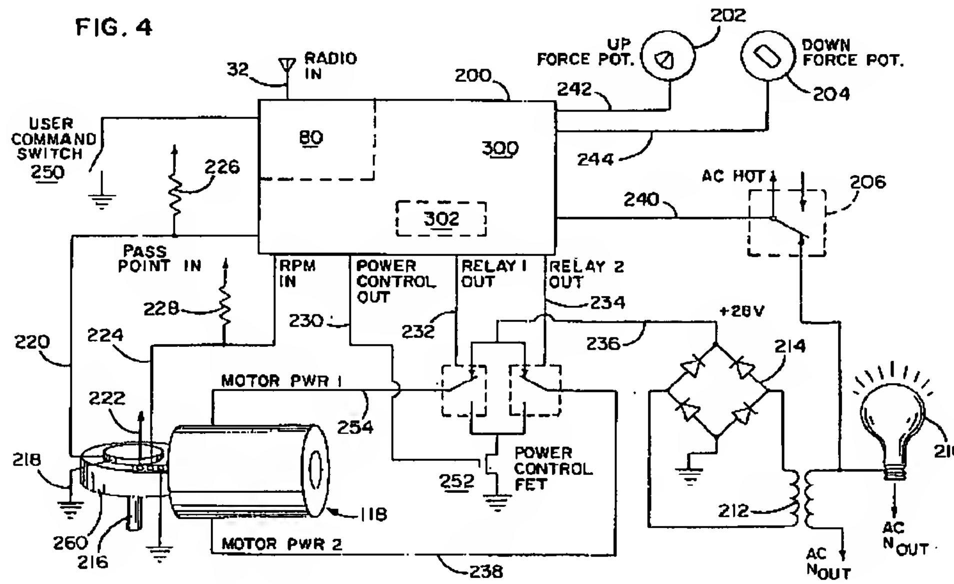
Rejections Under 35 U.S.C. 103

Claims 1-22 and 25-42 were rejected under 35 U.S.C. 103(a) given Miura in view of Fitzgibbon. Miura discloses a method and apparatus to detect an obstruction to a powered window. To effect this, Miura detects parameter values that correspond to a load as applied to the window when moving the window. Those detected parameter values are then compared with a predetermined reference median. Miura teaches use of an averaging technique to prevent noise from unduly impacting automated determination of such parameters. Miura therefore teaches automated determination of a loading parameter, but fails to teach or suggest that any operator-controlled adjustment of such a parameter be provided. Instead, Miura appears to teach that a parameter averaging technique will suffice.

Consequently, Miura has no "force control that has a user-manipuable setting range having a first end and a second end" as required by claim 1, or a "user-manipuable force control that has a mechanical setting range having a lower limit and an upper limit" as required by claim 30, or a "control device" have a "mechanical setting range" as required by claim 37, or a "force control" having a mechanical setting range as required by claim 38, or a "force control means having a setting range" as required by claim 40.

The Fitzgibbon reference describes a movable barrier operator. With reference to FIG. 4 of Fitzgibbon (reproduced below for the convenience of the reader), Fitzgibbon discloses the use of two force potentiometers (202 and 204).

FIG. 4



"Commanded force is input by two force potentiometers 202, 204. Force potentiometer 202 is used to set the commanded force for UP travel; force potentiometer 204 is used to set the commanded force for DOWN travel. Force potentiometers 202 and 204 provide commanded inputs to controller 200 which are used to adjust the length of the pulse signal provided to FET 252." [Column 7, lines 42-49.]

FIG. 5B (reproduced below for the convenience of the reader) provides additional detail regarding these potentiometers.

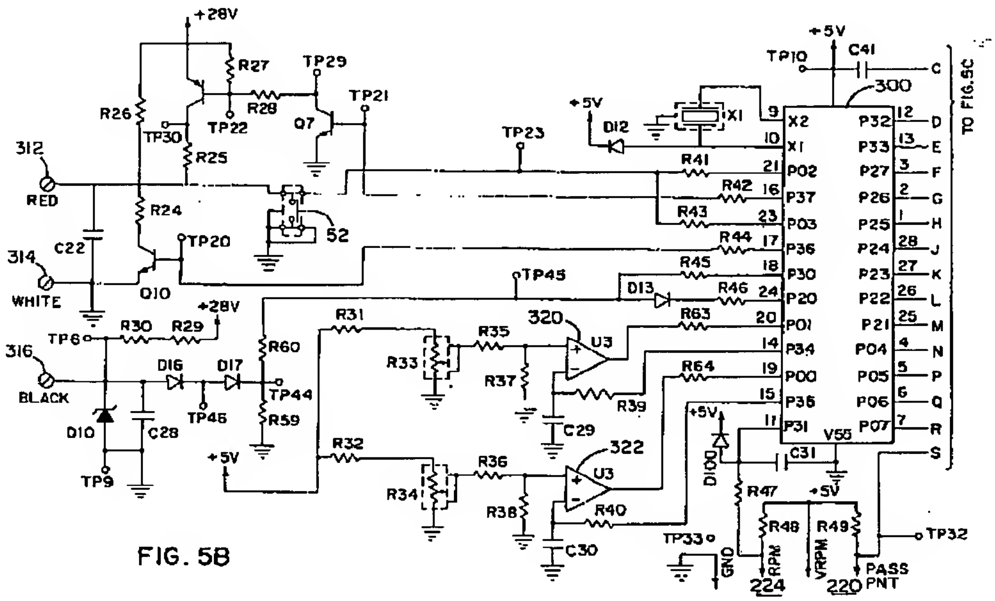


FIG. 5B

"Force potentiometers R33 and R34 are set by the user. The analog values set by the user are converted to digital values. The digital values are used as an index to the look-up table stored in memory. The value indexed from the look-up table is then used as the minimum motor speed measurement." [Column 13, lines 1-6.] "Motor speed is determined by the duration or length of the pulses in the signal to a gate electrode of FET 252. [See FIG. 4]. The shorter the pulses, the slower the speed." [Column 7, lines 24-26.] "Force potentiometers 202 and 204 provide commanded inputs to controller 200 which are used to adjust the length of the pulse signal provided to FET 252." [Column 7, lines 46-49.]

Accordingly, Fitzgibbon teaches the use of two user-manipulable potentiometers, with one corresponding to a motor speed setting in a first direction and the other corresponding to a motor speed limit in the opposite direction. These potentiometer settings correspond one-to-one to a predetermined speed as retained in a memory. These values are not ascertained or effected during a learning mode of operation. Furthermore, Fitzgibbon neither teaches nor discloses that the values in the memory as correspond to various potentiometer settings are themselves established in any fashion as set forth in the claims. For example, claim 1 requires that the barrier controller be placed in a learning mode, that the motor be operated,

and that a parameter that corresponds to operation of the motor then be measured. The resultant parameter value is then used to establish a specific force control value that is assigned to a specific location of the user-manipulable setting range of a force control. Instead, Fitzgibbon teaches that settings of maximum speed values for a motor are stored in a memory and then correlated to various specific positions of a potentiometer without observance of each of these indicated recitations.

The above-noted recitations are from claim 1. Claim 30 is essentially identical that further requires that the specific force control value be assigned to a specific location of a mechanical setting range. Claim 37 specifically provides for including a learning mode and claim 38 sets these recitations forth in an apparatus format. Claim 40 provides similar recitations in a means plus function format.

Miura teaches automatic determination of force related parameters and subsequent usage during operation of a movable window controller. Fitzgibbon teaches use of a user-controllable maximum force setting for use during movement of a movable barrier. One skilled in the art would clearly view Fitzgibbon and Miura as presenting alternatives to one another's approaches. Neither reference contains a suggestion that the dynamically developed parameter information of Miura be rendered somehow alterable by a user via a user-manipulable control. Consequently, neither reference makes a suggestion that such a control, if and when provided, may have a specific force control value assigned to a specific location of that corresponding user-manipulable setting range which specific force control value is established by using a parameter value that results from measurement of a parameter that corresponds to operation of a motor when that motor is operated, and particularly when operated in concurrence with a learning mode of operation.

Therefore, whatever combination one skilled in the art might seek to make of the Miura and Fitzgibbon reference, and however obvious or unobvious such a combination might be, no resultant combination will yield an embodiment as set forth in any of the independent claims of the present application. The applicant therefore respectfully submits that these claims are allowable over the references of record.

(9) The Claims

1. (Original) A method for use with a barrier controller having a force control that has a user manipulable setting range having a first end and a second end, comprising:
- initiating a learning mode;
- operating a motor;
- measuring at least one parameter that corresponds to operation of the motor to provide a parameter value;
- using the parameter value to establish a specific force control value;
- assigning the specific force control value to a specific location of the user manipulable setting range for the force control.

2. (Original) The method of claim 1 and further comprising:
- concluding the learning mode; and
- using the specific force control value to correlate a particular user manipulated setting to a particular operational force control value.

3. (Original) The method of claim 1 and further comprising:
- assigning a maximum force control value to the second end of the user manipulable setting range for the force control.

4. (Original) The method of claim 3 wherein assigning a maximum force control value to the second end of the user manipulable setting range for the force control includes using the specific force control value to calculate the maximum force control value.

5. (Original) The method of claim 3 wherein assigning a maximum force control value to the second end of the user manipulable setting range for the force control includes using a previously stored maximum force control value.

6. (Original) The method of claim 3 wherein assigning a maximum force control value to the second end of the user manipulable setting range for the force control includes using the specific force control value and other previously stored sensitivity control's values to identify the maximum force control value.

7. (Original) The method of claim 1 and further comprising disabling at least some barrier controller functions until the learning mode has been initiated at least one time.

8. (Original) The method of claim 1 and further comprising enabling at least one barrier control function upon concluding the learning mode.

9. (Original) The method of claim 1 and wherein initiating the learning mode includes actuating a user manipulable learning mode initiation switch.

10. (Original) The method of claim 9 wherein actuating the user manipulable learning mode initiation switch includes using a tool to access the user manipulable learning mode initiation switch.

11. (Previously Amended) The method of claim 1 wherein operating the motor includes operating the motor in a less than fully loaded operating state.

12. (Original) The method of claim 1 wherein operating the motor includes operating the motor in an ordinary loaded operating state.

13. (Original) The method of claim 1 wherein measuring at least one parameter that corresponds to operation of the motor includes measuring a parameter that corresponds to speed of rotation of a drive axle of the motor.

14. (Original) The method of claim 13 wherein measuring a parameter that corresponds to speed of rotation of a drive axle of the motor includes measuring speed of rotation of the drive axle of the motor.

15. (Original) The method of claim 13 wherein measuring a parameter that corresponds to speed of rotation of a drive axle of the motor includes measuring speed of rotation of a rotating member that has a speed of rotation that varies with respect to speed of rotation of the drive axle of the motor as a function of a gear ratio.

16. (Original) The method of claim 1 wherein measuring at least one parameter that corresponds to operation of the motor includes measuring a parameter that corresponds to speed of movement of a barrier that is operably coupled to the motor.

17. (Original) The method of claim 1 and further comprising providing a visual signal to indicate initiation of the learning mode.

18. (Original) The method of claim 1 wherein measuring at least one parameter that corresponds to operation of the motor to provide a parameter value includes sensing electric pulses that correspond to operation of the motor.

19. (Original) The method of claim 18 wherein measuring at least one parameter that corresponds to operation of the motor to provide a parameter value further includes counting the electric pulses over a predetermined period of time to obtain an average number of pulses per window of time.

20. (Original) The method of claim 1 wherein using the parameter value to establish a specific force control value includes assigning the parameter value as the specific force control value.

21. (Original) The method of claim 1 wherein using the parameter value to establish a specific force control value includes modifying the parameter value in a predetermined way to provide a modified parameter value and assigning the modified parameter value as the specific force control value.

22. (Original) The method of claim 1 and further comprising assigning other force control values to other settings of the user manipulable setting range for the force control.

23. (Original) The method of claim 22 wherein assigning other force control values to other settings of the user manipulable setting range for the force control includes assigning the force control values to thereby establish a linear relationship between the assigned force control values with respect to the other settings of the user manipulable setting range.

24. (Original) The method of claim 22 wherein assigning other force control values to other settings of the user manipulable setting range for the force control include assigning the force control values to thereby establish a non-linear relationship between the assigned force control values with respect to the other settings of the user manipulable setting range.

25. (Original) The method of claim 1 wherein assigning the specific force control value to a specific location of the user manipulable setting range for the force control includes assigning the specific force control value to the first end of the user manipulable setting range for the force control.

26. (Original) The method of claim 25 and further comprising assigning a maximum force control value to the second end of the user manipulable setting range for the force control.

27. (Original) The method of claim 25 and further comprising using the specific force control value to calculate a maximum force control value.

28. (Previously Amended) The method of claim 27 wherein using the specific force control value to calculate a maximum force control value includes adding to the specific force control value an amount equal to about 10 percent of the specific force control value.

29. (Original) The method of claim 27 and further comprising assigning the maximum force control value to the second end of the user manipulable setting range for the force control.

30. (Original) A method for use with a movable object having a user manipulable force control that has a mechanical setting range having a lower limit and an upper limit, comprising:
- initiating a learning mode;
- automatically operating a motor for at least a predetermined period of time;
- measuring at least one parameter that corresponds to operation of the motor to provide a parameter value;
- using the parameter value to establish a specific force control value;
- assigning the specific force control value to a specific location of the mechanical setting range for the force control.

31. (Original) The method of claim 30 wherein automatically operating a motor includes automatically operating the motor under predetermined operating conditions.

32. (Previously Amended) The method of claim 31 wherein automatically operating the motor under predetermined operating conditions includes automatically operating the motor under one of:
- a less than fully loaded operating condition; and
- a more than fully unloaded operating condition.

33. (Original) The method of claim 30 wherein measuring at least one parameter that corresponds to operation of the motor includes measuring at least one parameter that corresponds to rotational output of the motor.

34. (Original) The method of claim 30 wherein assigning the specific force control value to a specific location of the mechanical setting range for the force control includes assigning the specific force control value to the lower limit of the mechanical setting range for the force control.

35. (Original) The method of claim 30 and further comprising using the specific force control value to identify other force control values.

36. (Original) The method of claim 35 and further comprising assigning at least some of the other force control values to specific locations of the mechanical setting range for the force control.

37. (Original) A method comprising:
- initiating a learning mode;
- automatically operating a device in response to initiating the learning mode;
- automatically measuring at least one parameter that corresponds to operation of the device to provide a parameter value;
- automatically using the parameter value to establish a specific control value;
- automatically assigning the specific control value to a specific location of a mechanical setting range for a control device;
- concluding the learning mode.

38. (Original) A barrier controller for use with a movable barrier, a motor operably coupled to move the movable barrier in response to commands from the barrier controller, and a sensor for sensing at least one parameter that corresponds to operation of the motor, the barrier controller comprising:

- a force control having a setting range; and
- a programmable controller that is programmed to:
    - operate the motor during a learning mode;
    - receive information regarding the at least one parameter from the sensor during the learning mode;
    - using the information to establish a specific force control value during the learning mode; and
    - assigning the specific force control value to a specific location of the mechanical setting range of the force control.

39. (Original) The barrier controller of claim 38 wherein the barrier controller further comprises learning mode actuation means for at least initiating the learning mode.

40. (Original) A barrier controller for use with a movable barrier, a motor operably coupled to move the movable barrier in response to commands from the barrier controller, and a sensor for sensing at least one parameter that corresponds to operation of the motor, the barrier controller comprising:

- force control means having a setting range for providing a signal that corresponds to a force control value;
- learning means for initiating a learning mode;
- operation means responsive to the learning means and operably coupled to the motor to cause operation of the motor during the learning mode;
- measurement means responsive to the sensor for measuring the at least one parameter during the learning mode;

- determination means responsive to the measurement means for using at least one measurement of the at least one parameter to establish a specific force control value;
- assignment means responsive to the determination means for assigning at least the specific force control value to a specific location of the setting range of the force control means.

41. (Original) The barrier controller of claim 40 wherein the determination means further determines other force control values.

42. (Original) The barrier controller of claim 41 wherein the assignment means further assigns at least some of the other force control values to specific locations of the setting range of the force control means.

Respectfully submitted,

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Date: January 29, 2004

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